

## CLAIMS

1. Use of pediocin-producing pediococci for the manufacture of a composition for inhibiting the growth of pathogenic strains in the gastrointestinal tract, wherein the pediococci are characterised by a survival rate as per the Survival Rate Test defined herein of at least 80 %.
2. Use according to claim 1, wherein the survival rate is at least 90 %.
3. Use according to claim 1 or 2, wherein the pediococci are isolated from human faeces.
3. Use according to any one of claims 1-3, wherein the pediococci comprise *Pediococcus acidilactici* strain LMG P-21927.
4. Use according to any one of claims 1 - 4, wherein the pathogenic strains are of the Gram-negative type, preferably Gram-negative strains selected from the genera *Klebsiella*, *Pseudomonas*, *Shigella*, more preferably selected from the species *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Shigella flexneri*, and mixtures thereof.
5. Use according to any one of claims 1 - 4, wherein the pathogenic strains are Gram-positive strains of the genus *Enterococcus*, preferably Gram-positive strains selected from vancomycin-resistant enterococci, *Enterococcus faecium*, *Listeria monocytogenes* and mixtures thereof, more preferably selected from vancomycin-resistant enterococci.
6. Use according to any one of the preceding claims in combination with one or more further probiotics selected from *Lactobacillus rhamnosus*, *L. plantarum*, *L. fermentum*, *L. acidophilus*, *L. reuteri*, *L. casei*, *L. johnsonii*, *L. gasseri*, *L. crispatus*, *L. helveticus*, *L. salivarius*, *L. lactis*, *L. brevis*, *L. paracasei*, *L. sakei*, *Bifidobacterium animalis*, *B. lactis*, *B. adolescentis*, *B. longum*, *B. infantis*, *B. bifidum* and *B. breve*.

7. Use according to any one of the preceding claims wherein the pediococci and/or further probiotics are in encapsulated form.
8. Use according to any one of the preceding claims, wherein the composition is administered enterally, preferably orally.
9. Use of pediococci for the manufacture of a composition for preventing and/or treating diarrhoea and/or secondary disorders associated with overgrowth of pathogens or infection by pathogens in the gastrointestinal tract, wherein the secondary disorders are selected from water disturbances, mineral balance disturbances, malnutrition, dysfunctioning of tissues, dysfunctioning of organs, dysfunctioning of organism, and mixtures thereof, and wherein the pediococci are characterised by a survival rate as per the Survival rate Test defined herein of at least 80 %, preferably at least 90 %.
10. An isolated pediocin-producing pediococcus characterised by a survival rate as per the Survival Rate Test defined herein of at least 90 %.
11. A pediococcus according to claim 10 wherein the pediococcus is *P. acidilactici* as deposited at BCCM<sup>TM</sup>/LMG under No. LMG P-21927.
12. A health-promoting composition comprising a pediococcus according to claim 10 or 11 as a probiotic component.
13. A health-promoting composition according to claim 12, and further comprising a component selected from pediocin, additional probiotics, prebiotics, immunoglobulins, and mixtures thereof.
14. A method for isolating pediocin-producing pediococci from a substrate, wherein the pediocin-producing pediococci is isolated by using a medium comprising xylose, an antibiotic derived from quinolones and pediocin.
15. A method according to Claim 14, wherein the substrate is human faeces.

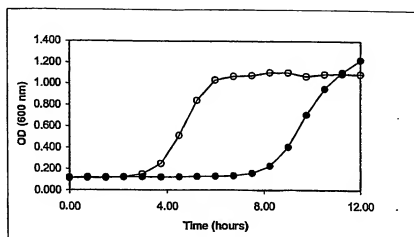


Figure 1: Effect of supernatant of LMG P-21927 containing pediocin (closed symbols) and a control supernatant from a *P. acidilactici* which does not produce pediocin (open symbols) on growth of a vancomycin-resistant strain of *E. faecium* as determined by optical density.

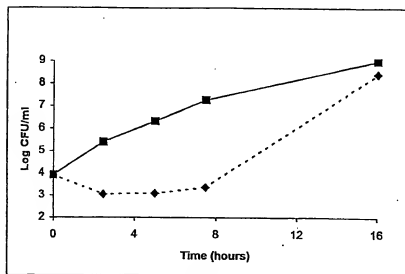


Figure 2: Effect of supernatant from LMG P-21927 containing pediocin (dotted line) compared to the effect of the control supernatant of a non-pediocin-producing *Pediococcus acidilactici* (straight line) on growth of a vancomycin-resistant strain of *E. faecium* strain as determined by cfu/ml.